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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/625,790	07/26/2000	Sturt W. Peltz	601-1-044DIV	8302

34055 7590 05/14/2004

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EXAMINER	
STEADMAN, DAVID J	

ART UNIT	PAPER NUMBER
1652	

DATE MAILED: 05/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/625,790	PELTZ ET AL.	
	Examiner	Art Unit	
	David J Steadman	1652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *26 July 0200* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Status of the Application

[1] Claims 1-7 are pending in the application.

Election/Restriction

[2] Applicants' election with traverse of the invention of Group IV, drawn to a method for treating a disease associated with a nonsense mutation in a gene modulating the function of a eukaryotic peptidyl transferase center, filed March 08, 2004, is acknowledged.

Applicants argue that the inventions of Groups I-IV are not independent and a search for inventions I-IV would not require a serious burden. Applicants' arguments have been considered and are not found persuasive. However, upon reconsideration of the restriction requirement, the claims of Groups I-IV have been re-joined and will be co-examined in a single application.

Specification/Informalities

[3] The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed. The following title is suggested: "Method for Inhibiting a Eukaryotic Peptidyl Transferase Center."

[4] Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 119(e) and 121 as follows: An application in

which the benefits of an earlier application are desired must contain a specific reference to the prior application(s) in the first sentence of the specification (37 CFR 1.78).

If applicant desires priority under 35 U.S.C. 119(e) and 121 based upon a previously filed copending application, specific reference to the earlier filed application must be made in the instant application. This should appear as the first sentence of the specification following the title, preferably as a separate paragraph. The status of nonprovisional parent application(s) (whether patented or abandoned) should also be included. If a parent application has become a patent, the expression "now Patent No._____" should follow the filing date of the parent application. If a parent application has become abandoned, the expression "now abandoned" should follow the filing date of the parent application.

[5] This application contains sequence disclosures that are encompassed by the definitions for nucleotide and/or amino acid sequences set forth in 37 CFR 1.821(a)(1) and (a)(2). However, this application fails to comply with the requirements of 37 CFR 1.821 through 1.825; applicants' attention is directed to the final rulemaking notice published at 55 FR 18230 (May 1, 1990), and 1114 OG 29 (May 15, 1990). To be in compliance, applicants must provide an initial computer readable form (CRF) copy of the "Sequence Listing", an initial paper copy of the "Sequence Listing", as well as an amendment directing its entry into the specification, and a statement that the content of the paper and CRF copies are the same and, where applicable, include no new matter as required by 37 C.F.R. 1.821(e) or 1.821(f) or 1.821(g) or 1.821(b) or 1.825(d). See particularly Figures 1A, 1B, 4, and 5B.

[6] The use of the trademark "TAB®" has been noted in this application (see page 28). Trademarks should be capitalized wherever they appear and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

Claim Rejections - 35 USC § 112, Second Paragraph

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

[7] Claim(s) 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

[a] Claims 1 (claims 2-4 dependent therefrom) and 5-7 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential elements, such omission amounting to a gap between the elements. See MPEP § 2172.01. The claims are drawn to methods for modulating function of a eukaryotic peptidyl transferase center by administering a drug that affects the eukaryotic peptidyl transferase center. However, the methods are incomplete as the methods fail to define what result or outcome is to be relied upon for determining whether a drug modulates eukaryotic

peptidyl transferase center function. It is suggested that applicants clarify the meaning of the claims.

[b] Claim 7 is unclear in the recitation of "a disease associated with a nonsense mutation in a gene modulating the function of a eukaryotic peptidyl transferase." It is unclear from the specification and the claims as to the scope of diseases that are meant to be encompassed by this term, particularly as it is unclear as to how the disease is "associated" with a nonsense mutation. In the interest of advancing prosecution, the examiner has interpreted viral infection and HIV as being encompassed by the term "a disease associated with a nonsense mutation in a gene modulating the function of a eukaryotic peptidyl transferase." It is suggested that applicants clarify the meaning of the claim.

Claim Rejections - 35 USC § 112, First Paragraph

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

[8] Claim(s) 1-3, 5, and 7 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 1-3 are drawn to a method for modulating function of a eukaryotic peptidyl transferase center by administering a genus of drugs that affect a eukaryotic peptidyl

transferase center and optionally wherein the drug is an antibiotic or a peptidyl transferase center inhibitor. Claims 5 and 7 are drawn to methods of treating a viral infection by modulating function of a eukaryotic peptidyl transferase center and a method for treating a disease associated with a nonsense mutation in a gene by modulating the function of a eukaryotic peptidyl transferase center by administering a genus of drugs that affect the eukaryotic peptidyl transferase center.

For claims drawn to a genus, MPEP § 2163 states the written description requirement for a claimed genus may be satisfied through sufficient description of a *representative number of species* by actual reduction to practice, reduction to drawings, or by disclosure of relevant, identifying characteristics, i.e., structure or other physical and/or chemical properties, by functional characteristics coupled with a known or disclosed correlation between function and structure, or by a combination of such identifying characteristics, sufficient to show the applicant was in possession of the claimed genus. See *Eli Lilly*, 119 F.3d at 1568, 43 USPQ2d at 1406. MPEP § 2163 states that a representative number of species means that the species which are adequately described are representative of the entire genus. Thus, when there is substantial variation within the genus, one must describe a sufficient variety of species to reflect the variation within the genus. In this case, the specification discloses only two representative species of drugs that affect the eukaryotic peptidyl transferase center, i.e., the antibiotics sparsomycin and anisomycin. The specification fails to describe any additional representative species of the recited genus of drugs, which encompasses species that are widely variant in both structure and function, i.e., any drug having any

structure and any function that affects a eukaryotic peptidyl transferase center. As such, the disclosure of the representative species of sparsomycin and anisomycin is insufficient to be representative of the attributes and features of *all* species of drugs that affect a eukaryotic peptidyl transferase center as encompassed by the recited genus of drugs. Given the lack of description of a representative number of drugs, the specification fails to sufficiently describe the claimed invention in such full, clear, concise, and exact terms that a skilled artisan would recognize that applicant was in possession of the claimed invention.

[9] Claims 1-7 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method for inhibiting function of a eukaryotic peptidyl transferase center in vitro by contacting a eukaryotic peptidyl transferase center or a host cell expressing a eukaryotic peptidyl transferase center with an effective amount of sparsomycin or anisomycin to inhibit the function of a eukaryotic peptidyl transferase center, does not reasonably provide enablement for: a method for modulating function of a eukaryotic peptidyl transferase center by administering any drug that has any effect on a eukaryotic peptidyl transferase center and optionally wherein the drug is any antibiotic or any peptidyl transferase center inhibitor; a method of treating any viral infection in any subject by modulating function of a eukaryotic peptidyl transferase center by administering any drug that has any effect on a eukaryotic peptidyl transferase center; a method for treating HIV infection in any subject by administering sparsomycin or anisomycin; or a method for treating any disease associated with a nonsense mutation in a gene by modulating the function of a

eukaryotic peptidyl transferase center by administering any drug that has any effect on a eukaryotic peptidyl transferase center. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

It is the examiner's position that undue experimentation would be required for a skilled artisan to make and/or use the entire scope of the claimed invention. Factors to be considered in determining whether undue experimentation is required are summarized in *In re Wands* (858 F.2d 731, 737, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988)) as follows: (A) The breadth of the claims; (B) The nature of the invention; (C) The state of the prior art; (D) The level of one of ordinary skill; (E) The level of predictability in the art; (F) The amount of direction provided by the inventor; (G) The existence of working examples; and (H) The quantity of experimentation needed to make or use the invention based on the content of the disclosure. See MPEP § 2164.01(a). The Factors most relevant to the instant rejection are addressed in detail below.

- The claims are overly broad in scope: The claims are so broad as to encompass a method for modulating a eukaryotic peptidyl transferase center by administering any drug that has any effect, i.e., inhibits or activates, a eukaryotic peptidyl transferase center or methods of treating any viral infection, HIV, or any disease associated with a nonsense mutation in a gene modulating the function of a eukaryotic peptidyl transferase center in any host – including in vivo treatment – by administering any drug that has any effect, i.e., inhibits or activates, a eukaryotic peptidyl transferase center or

sparsomycin or anisomycin (in the case of claim 6). In this case the disclosure is limited to a method for inhibiting function of a eukaryotic peptidyl transferase center in vitro by contacting a eukaryotic peptidyl transferase center or a host cell expressing a eukaryotic peptidyl transferase center with an amount of sparsomycin or anisomycin to inhibit the function of a eukaryotic peptidyl transferase center.

- The lack of guidance and working examples: The specification teaches only two working examples of drugs that have the ability to inhibit a eukaryotic peptidyl transferase center, i.e., anisomycin and sparsomycin. Further, the specification fails to provide guidance regarding other drugs that can be used to modulate the function of a eukaryotic peptidyl transferase center. Even assuming arguendo other drugs were disclosed, the specification fails to provide any guidance for treating a viral infection, HIV, or a disease associated with a nonsense mutation in a gene modulating the function of a eukaryotic peptidyl transferase center. Such additional guidance – for example, composition of the drug, route(s) of administration, dosages, and toxicity – is necessary to enable a skilled artisan to practice the claimed invention.

- The high level of unpredictability in the art: One of skill in the art would recognize that the ability to treat a given disease using a compound that "affects the eukaryotic peptidyl transferase" is highly unpredictable, particularly in view of the lack of guidance and working examples for treating disease in the specification. The specification provides the skilled artisan with guidance and working examples for in vitro inhibition of a eukaryotic peptidyl transferase. However, it is highly unpredictable as to whether this guidance will translate into a successful method of disease treatment.

- The amount of experimentation required is undue: In view of the failure of the specification to provide the guidance necessary for successfully treating a viral or HIV infection or a disease associated with a nonsense mutation in a gene modulating the function of a eukaryotic peptidyl transferase center, by providing essential aspects of the invention, e.g., composition of the drug, route(s) of administration, dosage, and toxicity of the drug necessary to achieve the desired result, a significant and undue amount of experimentation is required to make and use the claimed invention. Without the necessary guidance for practicing the claimed invention, the descriptions provided in the specification, without more precise guidelines, amount to little more than a starting point for further research (*University of Rochester v. G.D. Searle & Co. Inc.,* W.D. N.Y., No. 00-CV-6161L, 3/5/03).

Thus, applicant has not provided sufficient guidance to enable one of ordinary skill in the art to make and use the claimed invention in a manner reasonably correlated with the scope of the claims. The scope of the claims must bear a reasonable correlation with the scope of enablement (*In re Fisher*, 166 USPQ 19 24 (CCPA 1970)). Without sufficient guidance, determining those essential aspects of the invention that are not described in the specification is unpredictable and the experimentation left to those skilled in the art is unnecessarily, and improperly, extensive and undue. See *In re Wands* 858 F.2d 731, 8 USPQ2nd 1400 (Fed. Cir, 1988).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

[10] Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Carrasco et al. (Methods Enzymol 30:282-289). Claims 1-4 are drawn to a method for modulating the function of a eukaryotic peptidyl transferase center by administering a drug that affects a eukaryotic peptidyl transferase center, optionally wherein the drug is an antibiotic, a peptidyl transferase center inhibitor, or sparsomycin or anisomycin.

Carrasco et al. teach a method for inhibiting peptide bond formation by human tonsil ribosomes by addition of anisomycin and sparsomycin, wherein anisomycin blocks binding of substrates to the donor and acceptor sites of the peptidyltransferase center, while sparsomycin affects the donor site of the peptidyltransferase center (pages 283 and 289). This anticipates claims 1-4 as written.

[11] Claims 1-5 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Japanese Patent JP 63146818 A as evidenced by Dinman et al. (Proc Natl Acad Sci, USA 94:6606-6611). Claims 1-4 are drawn to a method for modulating the function of a eukaryotic peptidyl transferase center by administering a drug that affects a eukaryotic peptidyl transferase center, optionally wherein the drug is an antibiotic, a peptidyl transferase center inhibitor, or sparsomycin or anisomycin. Claims 5 and 7 are drawn to a method of treating a viral infection or a disease associated with a nonsense mutation

in a gene modulating the function of a eukaryotic peptidyl transferase center by administering a drug that affects a eukaryotic peptidyl transferase center.

JP 63146818 teaches a method for treating viral infections by administering anisomycin. Dinman et al. teach anisomycin is a peptidyl transferase inhibitor (page 6606, right column). This anticipates claims 1-5 and 7 as written.

While the reference of Dinman et al. does not antedate the filing date of the application, this reference demonstrates that the ability of anisomycin to affect a eukaryotic peptidyl transferase center is an inherent property of anisomycin. Therefore, the method of treating viral infection by administering anisomycin as taught by JP 63146818 would inherently have affected a eukaryotic peptidyl transferase center. If applicants traverse this rejection on the basis that multiple references have been applied in a rejection under 35 USC 102(b), applicant's attention is directed to MPEP 2131.01 regarding multiple references in a rejection under 35 USC 102(b). If applicants traverse this rejection on the basis that the reference of Dinman et al. does not antedate the filing date of the instant application, applicants' attention is directed to MPEP 2131.01, which states "the critical date of extrinsic evidence showing a universal fact need not antedate the filing date." See also MPEP 2124.

Claim Rejections - 35 USC § 102/103

[12] Claim 6 is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over JP 63146818 A as evidenced by Dinman et al. Claim 6 is drawn to a method for treating HIV infection by modulating the function of a

eukaryotic peptidyl transferase center by administering a drug that affects a eukaryotic peptidyl transferase center. Japanese Patent JP 63146818 A and Dinman et al. disclose the teachings as described above. JP 63146818 further teaches that an example of a "virus" that anisomycin is useful for treating is AIDS (see translated abstract). At the time of the invention, one would have recognized that AIDS is not a viral infection, but is the manifestation of HIV infection. Thus, one of ordinary skill would have recognized that anisomycin would have inhibited HIV viral replication and not AIDS.

Conclusion

[13] Status of the claims:

- Claims 1-7 are pending.
- Claims 1-7 are rejected.
- No claim is in condition for allowance.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Steadman, whose telephone number is (571) 272-0942. The Examiner can normally be reached Monday-Friday from 7:30 am to 4:00 pm. If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Ponnathapura Achutamurthy, can be reached at (571) 272-0928. The FAX number for submission of official papers to Group 1600 is (703) 872-9306. Draft or informal FAX communications should be directed to (571) 273-0942. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Art Unit receptionist whose telephone number is (703) 308-0196.

David J. Steadman, Ph.D.
Patent Examiner
Art Unit 1652
05-10-04